

WHAT IS CLAIMED IS:

1. An interface module comprising:
one or more serial interfaces;
one or more physical modules operable to interface
5 with one or more components having disparate physical
interfaces;
a conversion module associated with the serial
interfaces and the physical interfaces, the conversion
module operable to convert data transmitted between the
10 serial interfaces and the physical modules; and
a plurality of queues associated with the physical
modules and the conversion module, the queues operable to
order the transmission of the data between the physical
modules and the serial interfaces.
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2. The interface module of Claim 1 wherein the
serial interfaces comprise disparate serial interfaces.
3. The interface module of Claim 1 wherein the
20 queues are further operable to provide short term storage
for the data transmitted between the physical modules and
the serial interfaces.
4. The interface module of Claim 1 wherein the
25 queues are further operable to synchronize the data
transmitted between the physical modules and the serial
interfaces.
5. The interface module of Claim 1 wherein the
30 queues comprise first in, first out storage medium.

6. The interface module of Claim 1 further comprising a management module associated with the queues, the management module operable to control the operation of the queues and how the queues order the transmission of the data between the physical modules and the serial interfaces.

7. The interface module of Claim 6 wherein the management module is further operable to determine the route of the data transmitted between the physical modules and the serial interfaces.

8. The interface module of Claim 6 further comprising a control module associated with the management module, the control module operable to communicate to the management module information regarding the conversion of the data transmitted between the physical modules and the serial interfaces.

9. The interface module of Claim 1 wherein the physical module comprises a field programmable device.

10. The interface module of Claim 9 wherein the field programmable device comprises a field programmable gate array.

11. The interface module of Claim 1 wherein the physical module comprises a fixed programmable device.

12. The interface module of Claim 11 wherein the fixed programmable device comprises an application specific integrated circuit.

5 13. The interface module of Claim 1 wherein the physical modules are operable to interface with more than one type of physical interface.

10 14. The interface module of Claim 1 wherein the conversion module is operable to interface with more than one type of serial interface.

15 15. The interface module of Claim 1 wherein the conversion module comprises a field programmable device.

16 16. The interface module of Claim 15 wherein the field programmable device comprises a field programmable gate array.

20 17. The interface module of Claim 1 wherein the conversion module comprises a fixed programmable device.

25 18. The interface module of Claim 17 wherein the fixed programmable device comprises an application specific integrated circuit.

30 19. The interface module of Claim 1 wherein the conversion module deserializes the data transmitted from the serial interfaces to the physical modules.

20. The interface module of Claim 1 wherein the conversion module serializes the data transmitted from the physical modules to the serial interfaces.

5 21. The interface module of Claim 1 wherein the serial interfaces are operable to interface with one or more serial interface devices having disparate serial interfaces.

10 22. The interface module of Claim 21 wherein one of the serial interface devices comprises a backplane having a plurality of serial interfaces.

15 23. The interface module of Claim 1 wherein the components that the physical modules interface with have parallel interfaces.

20 24. The interface module of Claim 1 further comprising a configuration bus associated with the physical modules, the configuration bus operable to program the physical modules to interface with a particular type of physical interface.

25 25. The interface module of Claim 24 wherein the configuration bus is further operable to program the conversion module to interface with a particular type of serial interface.

26. A method for disparate physical interface conversion, the method comprising:

interfacing with one or more serial interfaces;
interfacing with one or more components having
5 disparate physical interfaces;
ordering in a plurality of queues data transmitted between the components and the serial interfaces; and
converting the data transmitted between the components and the serial interfaces from one type of
10 physical interface to another type of physical interface.

27. The method of Claim 26 wherein interfacing with one or more serial interfaces comprises interfacing with a backplane having a plurality of serial interfaces.

28. The method of Claim 26 wherein ordering the data transmitted between the components and the serial interfaces comprises ordering the data so that the data first received in the queue is the first data to exit the
20 queue.

29. The method of Claim 26 further comprising:
providing short term storage of the data within the queues; and
25 ordering the data within the queues.

30. The method of Claim 26 wherein converting the data transmitted between the components and the serial interfaces comprises deserializing the data transmitted
30 from the serial interfaces to the components.

31. The method of Claim 26 wherein converting the data transmitted between the components and the serial interfaces comprises serializing the data transmitted from the components to the serial interfaces.

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32. The method of Claim 26 wherein one of the components having disparate physical interfaces comprises a component having a parallel interface.

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33. The method of Claim 26 further comprising communicating information regarding the components and information regarding the conversion of the data transmitted between the components and the serial interfaces.

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34. The method of Claim 33 further comprising controlling the operation of the queues based on the information regarding the components and the information regarding the conversion of the data.

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35. The method of Claim 26 further comprising determining the route of the data transmitted between the components and the serial interfaces.

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36. The method of Claim 26 wherein interfacing with one or more serial interfaces comprises interfacing with more than one type of serial interface.

37. The method of Claim 26 wherein interfacing with
one or more components having disparate physical
interfaces comprises programming one or more physical
modules to interface with the components where the
5 components have a particular type of physical interface.

38. The method of Claim 26 wherein interfacing with
one or more serial interfaces comprises programming a
conversion module to interface with a particular type of
10 serial interface.

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39. A system for interfacing disparate physical interfaces, the system comprising:

a backplane having one or more backplane serial interfaces;

5 one or more serial interfaces associated with the backplane, the serial interfaces operable to interface with the backplane serial interfaces;

10 one or more physical modules associated with the backplane, the physical modules operable to interface with one or more components having disparate physical interfaces;

a conversion module associated with the backplane, the conversion module operable to convert data transmitted between the backplane and the components; and

15 a management module associated with the backplane and the physical modules, the management module operable to control the transmission of the data between the backplane and the components using a plurality of queues.

20 40. The system of Claim 39 wherein one of the components comprises a network processor.

25 41. The system of Claim 39 wherein one of the components comprises an application specific integrated circuit.

42. The system of Claim 39 wherein one of the components comprises a field programmable gate array.

30 43. The system of Claim 39 wherein one of the components comprises a microprocessor.

44. The system of Claim 39 wherein one of the components comprises a digital signal processor.

5 45. The system of Claim 39 wherein the queues are operable to provide short term storage and synchronization for the data transmitted between the backplane and the components.

10 46. The system of Claim 39 wherein the physical interfaces for the components having disparate physical interfaces comprise parallel interfaces.

15 47. The system of Claim 39 wherein the conversion module is further operable to:
deserialize the data transmitted from the backplane to the components; and

serialize the data transmitted from the components to the backplane.

20 48. The system of Claim 39 wherein two or more of the components having disparate physical interfaces communicate with each other utilizing the backplane.